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ABSTRACT

In the first year of the Rural Education Initiative (1987-88), several rural school districts in the Northwest began distance education projects that promise to be successful and applicable in other districts. Each project meets an educational need or rationale identified by the district; technology-based programs satisfy recognized criteria for successful implementation of such programs. These promising practices feature: (1) a class that offers high school students their choice of correspondence courses; (2) satellite transmission of courses to a network of 56 cooperating school districts in 8 states; (3) individualized courses of study provided through electronic mail to 20 districts in Montana and Idaho, with student/teacher interaction and on-line testing via the computer station; (4) secondary school courses broadcast on public television with two-way audio communication by phone; (5) an audiographics system connecting a community college and several community sites using standard telephone lines; and (6) a short-range television system connecting a community college and five rural districts, which allows broadcasts from any site. In distance education the responsibilities of instruction are divided between the delivery and receiving sites. Since the facilitator at the receiving site performs some of the functions of a teacher, many states now insist that certified personnel staff such positions. (SV)

THE Northwest Regional Educational Laboratory

PROGRAM REPORT

Distance Education: Promise, Practice, and Pedagogy

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Introduction

The Rural Education Program of NWREL is providing technical assistance in Distance Education to small rural school districts in the Northwest Region with the support of funds from the Rural Education Initiative. In addition to providing assistance, we are observing and documenting the projects and applications of distance education in the region. This paper presents the promising practices in the region at the current time, establishes a framework for judging that promise, and seeks to identify the pedagogical issues which districts must deal with in order for that promise to be realized.

The Promise of Distance Education. The use of any instructional strategy or technique should be rooted in the needs of the learner. Therefore, when we look to distance education techniques, it should be because they fit the instructional needs of our population. Some of the reasons used by school districts for considering such delivery of instruction follow.

1. To provide for instruction in a subject for which expertise does not exist in the teaching staff.

2. To provide for instruction in a subject for which a teacher cannot be hired (for a variety of reasons).

3. To bring new perspectives or experiences to students from places which are not accessible for reasons of cost, time, distance or other factors.

4. To add expertise or information of a more current nature than available from the teacher or community.

5. To provide for learning styles not well-addressed by a standard classroom.

6. To provide instruction for students who are located in remote sites, or who are not easily reached because they are homebound or institutionalized.

7. To offer instructional opportunities to students needing flexibility in time and/or location.

A number of school district projects in the Northwest region, using a variety of approaches to distance education, have one or more of these reasons in their rationale. Experience in these projects, and in projects elsewhere in the world, is showing that these are reasonable expectations, and therefore realistic goals. Moreover, they are particularly relevant to the problems of the small, rural secondary schools, found in abundance in the Northwest and Pacific region.

The first major observation on promising practices is that distance education techniques of several types have been shown to be capable of providing acceptable solutions to several instructional problems of the small rural secondary school.

In a reassessment of the claims made for educational technology based on the experience of the last 50 years, Ely and Plomp identify a series of characteristics of successful technology-based programs:

--they meet critical educational needs

--they are oriented toward the individual learner rather than toward the teacher

--they are cost-effective

--delivery systems are relatively simple and available

--there is an emphasis on the design of the system.

If a district has identified a need or rationale for which distance education is a promising solution, then success may be measured in terms of the degree to which the needs or rationale are satisfied. The list above provides a set of guidelines which would help assure success, based on previous experience.

The two lists together provide reasonable expectations along with the conditions for successful implementation. Using them, the promise of distance education can be realized given the right conditions, but it is not guaranteed.

The Practice of Distance Education. In the first year of the Rural Initiative, four projects were observed which represent four different approaches or techniques. Because they are each well-received, they hold great promise for serving more schools and districts. Because they use different approaches, they represent options and choices for districts.

Correspondence courses are the traditional method of supplementing the curriculum for students in remote locations. Each of the states has some mechanism for offering such courses, which are aimed at serving an individual student who is homebound or not close enough to a school. Some universities in the U.S. such as the University of Wisconsin offer a broad correspondence curriculum through their extension services. Liberty High School in Spangle, Washington, has instituted a correspondence classroom in which students may select any subject or topic for which a correspondence course is available. The class typically has 25 students taking a total of 15 to 20 courses in a given semester.

There are several options available in the region for enhancing the school curriculum through the use of technology. The STEP Project (Satellite Telecommunications Educational Programming) is a cooperative of school districts organized by Education Service District 101, a regional service center in the state of Washington. Membership has grown from 18 districts in Washington to 56 districts in eight states in a two-year period. The subjects are determined and the courses planned by the cooperative. The production and satellite transmission are done by RXL Com of Spokane. The production is jointly funded by the districts, and each district acquires its own satellite antenna and receiving equipment. Instruction is one-way video, with two-way audio interaction by telephone. Courses in Japanese, Spanish I and II, Advanced Senior English and Pre-calculus are currently offered.

In Montana, EDUNET is a private nonprofit organization offering individualized instruction in a variety of subjects, primarily for secondary schools but also for

elementary and continuing education audiences. Instruction is provided through a combination of print, video and computer-based materials. The core of the system is a computer program which provides electronic mail, on-line testing, student records and course development facilities. A participating school provides an on-site facilitator who is a certified teacher, and a computer station with a modem. Enrolled students are provided an individualized course of study through electronic mail, and interaction with the teacher is through that medium. Print and video materials are sent out by mail. Grades and credit are established primarily through scores on tests which must be taken on-line. Per-student fees support the organization, which is housed in Helena High School, Helena, Montana. EDUNET serves over 20 small districts in Montana and Idaho. Sixteen semester, year-long and multi-year courses are currently offered. Availability on any large scale outside Montana would probably occur through transplanting the system in locations in other states, using local staffing.

IREDS (Idaho Rural Education Delivery System) is a joint project of the Idaho Department of Education and Boise State University which provides courses to rural secondary schools. The courses are televised, produced at Boise State and broadcast through the public television channels in Idaho. A live two-way audio capability is provided by phone. A mathematics course taught by a staff member of the Boise School District was offered in five districts during 1987-88 and will be offered again in 1988-89 with greater participation. Additional offerings will depend on development funding.

The Colville Center of the Spokane Community College has installed an audio-graphics system which connects several communities in Northeast Washington with a classroom in the Center at Colville. A microcomputer with graphics tablet, modem, and a speakerphone, are located at the Center and each remote site. As regular instruction takes place with a class at the Center, students at the remote sites participate by hearing the teacher and in-class students and contributing to the question and discussion parts of a class session. The teacher writes on the graphics tablet instead of a chalkboard, and the result is displayed on a large screen in the classroom and on a screen at the remote sites simultaneously. Remote students can also write on their tablets for display throughout the system. Thus, remote students interact with the teacher and other students in almost every way except that they cannot see each other. Standard telephone lines are used for transmission. Although not used at Colville for secondary courses or elsewhere in the region at elementary or secondary levels as far as we know, this type of system holds great promise particularly because of the low communications cost compared to satellite or other video systems. Furthermore, because microcomputers are already available in many schools, the relatively low cost of the additional equipment makes this an attractive option. This sort of technology makes it possible for a group of secondary schools to consider sharing the expertise of a teacher in one of the schools. They could jointly consider the cooperative use of teaching expertise existing in any one of the schools in the group.

In Yamhill County, Oregon, a project has been started which will be testing another technology option during the 1988-89 school year. The Yamhill ESD has formed a cooperative of five small rural districts which have identified several curricular areas of common need. While not currently providing service as in the four previous examples, the delivery system has been demonstrated, and some pilot instructional activities are being planned. The primary technology used in the plan is the ITFS system at Chemeketa Community College in Salem, Oregon. Through this short-range television system, an instructor from one of the participating schools

or from the college could teach a course to be received by all the schools, including the possibility of two-way conversations between students and teacher by telephone in the same manner as in the STEP project described previously. An additional feature to be tested is the redistribution to project schools of a course broadcast by another agency. In that case, a course broadcast by TI-IN, a production agency in Texas, will be received by satellite at Chemeketa and then sent out over the ITFS system to the schools. This sort of system will then offer schools the option of receiving courses from outside agencies as well as local production.

The Pedagogy of Distance Education

The responsibility for planning and carrying out instruction in distance education rests in two places. First, the originator of the instruction must plan the general strategy of presentation of the course or other instructional unit, and the specific strategy for each lesson. This is usually the presenting teacher in the case of the television course, or a specified course developer in the case of correspondence study. The task is akin to the lesson planning function of a regular classroom teacher, although it must take into account the advantages and limitations of the medium of transmission, and some consideration for a strict time schedule in the case of television.

The second locale of responsibility is at the receiving site, the place where the learner will be engaged. In the context of this paper, it is the small rural school. The task here is to manage the learner and the learning environment. Considerations include the selection and preparation of an appropriate room, installation and care of equipment, scheduling the viewing or listening time in coordination with the school or student schedule, monitoring attendance and other student responsibilities, discipline, arranging make-up opportunities, providing student assistance, and keeping records of student progress.

In distance education then, the components of pedagogy are divided, and plans for both the delivery end and the receiving end need to be carefully considered if instruction is to be successful. That is true for all of the promising practices described in the previous section, whether the delivery system is technology-based or not. In developing the questionnaires for distance education project evaluation, NWREL staff identified some of the components of quality instruction as follows:

--provide individual attention

--give feedback on progress

--provide opportunity for student questions

--provide opportunities for students to answer teacher questions

--set clear expectations for student learning

--identify and meet student goals for learning

--make the subject matter interesting

--provide challenge for student abilities

--pace instruction to coincide with expectations and student abilities

--allow for discussion and interaction among students

--provide for review of material covered

--introduce new topics clearly

--grade student performance in a fair and understandable way

--maintain discipline and respect for other learners

--motivate students to learn

--provide for different learning styles

While the list is not exhaustive of good teaching skills, it certainly contains many of the ingredients of a successful instructional situation which many teachers strive to include in their plans. The problem in distance education systems is that not all of the items can be covered from the delivery end, and must be either supplemented or provided at the receiving end.

In all of the promising practices observed thus far, both the delivering organizations and the receiving schools recognize the importance of having a person in the classroom or other learning site. In various projects, the person is called facilitator, monitor or coordinator, but the role of the person is quite common to all the projects, including the correspondence course option. Several large organizations producing distance courses are developing lists of prerequisites, tasks and expectations of the local facilitator, and in fact are beginning to insist on the assignment of appropriate people to such positions. It is useful to look at some of the common tasks:

--Prepare equipment and supplies for students

--Perform recordkeeping for student work and other needs

--Maintain discipline

--Provide course instructor with feedback

--Serve as liaison with the instructor and other production staff

--Monitor homework

--Administer tests

--Provide understanding and encouragement to students

When a comparison is made of this short list with the items in the list of good teaching practices above, an overlap is evident. In fact, we have observed in practice that the coordinator provides student assistance in content questions in many cases, not ordinarily required of the person but clearly needed by the students.

Therefore, the local coordinator position in some cases is taking on many of the functions of a teacher. Producing agencies generally recommend that a noncertified person with appropriate training (sometimes provided by the producer) is suitable to fill the position.

Many state education agencies disagree and set forth rules specifying certified personnel for the position. It is apparent that having a person in such a position is important to all concerned, and that the required role includes many tasks and characteristics of a regular classroom teacher.

All of the foregoing discussion does not mean that the teacher of a distance course does not also carry out many of the items on the list of good teaching practice. Course and lesson design, presentation, instructional materials and test development are all in the teacher's responsibility. However, especially in the systems making use of live television and two-way audio, the teacher can play an active role in motivation, student involvement in questions and interaction with other students and other tasks even though the local coordinator is assisting in those areas.

Conclusion

This report on promising practices in distance education in the Northwest region is based on experience in technical assistance during the 1987-88 school year and recent writing in the field of distance education. We have found that because the districts in the region are inexperienced in the technique, having been involved for at most two years, classroom and school procedures are in a state of ongoing change. A school may change its procedures each semester, and certainly the role of monitor or facilitator changes somewhat in each case each year. Therefore, we will be learning a great deal more in the second year of service, and what has been said about actual practice could easily change.

There are two major areas in which we need to learn more and where we will be focusing our attention during the coming year. The first is the pedagogy of distance education, particularly as it is reflected in the definition, preparation, and use of the classroom monitor or facilitator. We are examining the position as it is implemented in the EDUNET Project in Montana, which is based on nontelevision technology. This will contrast with the past year's observations of the television-based STEP and IREDS Projects.

The second area is the institutionalization of distance education practice. We want to know how the use of distance teaching techniques of all types become standard options for small rural districts, and how they become integral parts of the instruction program. Perhaps the process takes longer than the two or three years most of our districts have been involved, but we believe our site visits and interviews will give us some insights.

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The Northwest Regional Educational Laboratory (NWREL) is an independent, nonprofit research and development institution established in 1966 to assist education, government, community agencies, business and labor in improving quality and equality in educational programs and processes by:

- Developing and disseminating effective educational products and procedures
- Conducting research on educational needs and problems
- Providing technical assistance in educational problem solving
- Evaluating effectiveness of educational programs and projects
- Providing training in educational planning, management, evaluation and instruction
- Serving as an information resource on effective educational programs and processes including networking among educational agencies, institutions and individuals in the region

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